

Volume: 3
 Number: 1
 Page: 22 – 30

Article History:
 Received: 2022-11-02
 Revised: 2022-12-20
 Accepted: 2023-01-17

THE EFFECT OF IMPLEMENTATION OF DMO AND DPO ON INDONESIAN PALM OIL EXPORTS

Lisnatiawati SARAGIH¹, Djamarel HERMANTO²

¹Defense Economics Study Program, The Republic of Indonesia Defense University Bogor, Indonesia.

²Management Study Program, Mercu Buana University, Jakarta, Indonesia.

Corresponding author: Lisnatiawati Saragih

E-mail: lisnatiawati@gmail.com

Abstract:

This study aims to determine and analyze (1) the effect of Domestic Market Obligation, DMO, implementation and partial, Domestic Price Obligation, DPO, implementation on Indonesian palm oil exports and (2) the effect of simultaneous DMO implementation and DPO implementation on Indonesian palm oil exports. This research is descriptive research that aims to describe or describe thoroughly and clearly the characteristics of the problem or phenomenon being faced, and verification research is a type of research that seeks to determine the relationship between variables through hypothesis testing, method used is an explanatory survey, which is research conducted to obtain a systematic, factual and accurate description, picture or painting of the facts, characteristics and relationships between the variables studied. The results of the Pearson correlation test on the variables of DMO implementation and DPO implementation had a strong/close relationship with palm oil exports. The regression test results, simultaneously with the F test and partially with the t-test, show that the implementation of DMO and the implementation of DPO have a significant effect on Palm Oil Exports.

Keywords: Effect of Implementation, DMO, DPO, Palm Oil Exports.

Cite this as: SARAGIH. L¹, & HERMANTO, D². (2023). "The Effect of Implementation of DMO and DPO on Indonesian Palm Oil Exports." *Journal of Tourism, Economics and Policy*, 3 (1), 22 – 30.



INTRODUCTION

There is a government policy regarding the regulation on the obligation of a Business Entity or Permanent Establishment to hand over a portion of palm oil from its share to the state through the Implementing Agency in the context of supplying palm oil to meet domestic needs, the amount of which is regulated in the Cooperation Contract.

Domestic Market Obligation, DMO is to requires all palm oil producers who will export to allocate part of their production volume for domestic needs. During the Domestic Price Obligation, DPO regulates the price of crude palm oil, CPO, in the country. DPO is the selling price of domestic palm oil which has been regulated in the Decree of the Minister of Trade of the Republic of Indonesia number 129 of 2022.

The reason for implementing DMO and DPO palm oil policies is to maintain and fulfill the availability of palm oil at affordable prices.

Table 1. Descriptive Analysis of Research Variables

Description	Years				
	2017	2018	2019	2020	2021
Palm Oil Export Value	22.97	23.20	20.20	22.96	30.04
Savings Foreign Exchange Solar (B-30)				3.28	3.77
Sub Total Exchange for Palm Oil				26.24	33.81
Net Export Migas	(8.60)	(12.70)	(10.20)		
No B-30				(8.61)	(13.05)

With B-30				(5.95)	(9.28)
Net Export Non Migas	20.40	4.00	6.50		
No Palm				4.73	10.04
With Palm				27.69	40.09
Net Trade	11.80	(8.70)	(3.70)		
No Palm and B-30				(3.88)	(3.01)
With Palm and B-30				21.74	30.81

Source: Palm Oil Agribusiness Strategic Policy Institute, PASPI & Gabungan Pengusaha Kelapa Sawit Indonesia, GAPKI (2021)

In Table 1, Indonesia's trade balance in 2021 is estimated to have a surplus of US\$40.00 billion because until October 2021, the export value of Indonesian palm oil is around US\$30.04 billion and the value of Indonesian palm oil exports in 2021 is around US\$35.00 billion. Furthermore, total exports of refined palm oil reached 91.14%, namely oleochemicals, biodiesel, refined palm kernel oil, and refined palm oil, while total exports of crude palm oil, CPO and crude palm kernel oil, CPKO were around 8.86%. It shows that Indonesia's downstream of the palm oil industry is improving. As a result, the composition of exports of processed palm products is increasing from year to year.

By considering the results of the evaluation of the implementation of the one-price palm oil policy that has been going on for the past week, the DMO policy mechanism or domestic supply obligation is mandatory for all palm oil producers who wish to export. So that all exporters who will export must supply palm oil to the country as part of the export volume based on the Decree of the Minister of Trade of the Republic of Indonesia number 129 of 2022, which is 20%. Subsequently, an increase in DMO was applied to 30%. This decision is contained in the Decree of the Minister of Trade of the Republic of Indonesia Number 170 of 2022, with an increase in DMO from 20% to 30%, meaning that CPO producers must supply 30% of their production for domestic needs so that they can further secure the supply of palm oil in the country.

METHOD

This research is descriptive research that aims to describe or describe thoroughly and clearly the characteristics of the problem or phenomenon being faced, and verification research is a type of research that aims to determine the relationship between variables through hypothesis testing. The method used is an explanatory survey, which is research conducted to obtain a systematic, factual and accurate description, picture or painting of the facts, characteristics and relationships between the variables studied. The researcher chooses the explanatory survey research method because the researcher wants to find answers fundamentally about cause and effect by analyzing the factors causing the occurrence of a particular phenomenon, namely phenomena related to the problems and practices in this research.

The variables in this study consist of; (1) DMO Implementation (X1), (2) DPO Implementation (X2), and (3) Palm Oil Exports (Y). To analyze the effect of the variables of DMO implementation (X1) and DPO implementation (X2) on Palm Oil Exports (Y), multiple regression analysis was used. The reason for using multiple regression analysis in this study is that there is more than one independent variable. There are two variables. By considering giving time for adjustment and management of palm oil stocks at the level of traders to retailers, and producers to accelerate the distribution of palm oil and ensure that there is no vacancy at the level of traders and retailers, both in traditional and modern retail markets. Furthermore, the public must remain wise in buying and not panic buying because the government guarantees that palm oil stocks will remain available at affordable prices.

Validity and Reliability Test. Validity testing is carried out to determine whether the measuring instrument designed as a questionnaire can perform its function. As has been explained

in the research methodology, a statistical approach is used to test the validity of a measuring instrument, namely through the correlation coefficient value of the statement item score with the total score. If the statement item's correlation coefficient with the other items' total score is $\geq 0,30$ then the statement is declared valid, or if the validity index of each question item is greater than the critical validity index, which is 0.3.

Based on the results of processing using product-moment correlation (validity index), the validity test results show that all question items are valid because the value of the validity index is greater than the value of the critical validity index. The results of this test indicate that all the questions asked on the three variables are valid and suitable to be used as measuring tools for research and can be included in further analysis.

In addition to being valid, measuring instruments must also have reliability. A reliable measuring instrument is if the measuring instrument is used repeatedly, it will give relatively the same results (not much different). A statistical approach is used to see whether a measuring instrument is reliable or not, namely through the reliability coefficient. If the reliability coefficient is greater than 0.70, the overall statement is declared reliable.

Based on the results of processing using the alpha-Cronbach method, the reliability test results are obtained, as shown in Table 2.

Table 2. Reliability Test Results of Research Questionnaires

Questionnaire	Number of Questions	Coefficient Reliability	Mark
DMO	53	0,985	reliable
DPO	27	0,974	reliable
EMG	11	0,950	reliable

Source: Processed by Author (2023)

Regression Assumption Test. Before testing the hypothesis, the classical assumption is tested first to determine whether the conclusions from the regression are unbiased. Several assumptions must be met, including normality, multicollinearity, and heteroscedasticity tests.

The assumption of normality is an essential requirement in testing the significance (significance) of the regression coefficient. If the regression model is not normally distributed, the conclusions from the F-test and t-test are still doubtful because the F-test statistics and t-test in regression analysis are derived from the normal distribution. In this study, the one-sample Kolmogorov-Smirnov test was used to test the normality of the regression model. In Table 3, it can be seen that the probability value (significance) obtained from the Kolmogorov-Smirnov test is 0.765. Because the probability value in the Kolmogorov-Smirnov test is still greater than the error rate of 5% (0.05), it is concluded that the regression model is normally distributed.

Multicollinearity means a strong relationship exists between some or all of the independent variables in the regression model. If there is multicollinearity, the regression coefficient becomes indeterminate, the error rate becomes very large and is usually characterized by a huge coefficient of determination. However, in partial testing, there are few significant regression coefficients. In this study, the value of variance inflation factors, VIF is used as an indicator of the presence or absence of multicollinearity among the independent variables.

Table 3. Normality Assumption Test Results One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		26
Normal Parametersa, b	Mean	.0000000
	Std. Deviation	.83182800
Most Extreme	Absolute	.131

Differences	Positive	.127
	Negative	-.131
Kolmogorov-Smirnov Z		.667
Asymp. Sig. (2-tailed)		.765
a. Test distribution is Normal		
b. Calculated from data		
Source: Processed by Author (2023)		

Based on the VIF value obtained as shown in Table 4, it shows that there is no strong correlation between the independent variables, this is indicated by the VIF value of the two independent variables is still smaller than 10 and it can be concluded that there is no multicollinearity between the two independent variables.

Table 4. Multicollinearity Assumption Test Results Coefficients

		Collinearity Statistics	
Model		Tolerance	VIF
1	DMO		
	DPO	.971	1.029
		.971	1.029

a. Dependent Variable: EMG
Source: Processed by Author (2023)

Heteroscedasticity indicates that the variance between residuals is not homogeneous, which results in the estimated value is no longer efficient. To test whether the variance of the residual is homogeneous, Spearman's rank test is used, namely by correlating the independent variable to the absolute value of the residual (error). If there is a significant independent variable correlation coefficient, it indicates the existence of heteroscedasticity. In Table 5, the significance value of each independent variable correlated to the absolute value of the residual (error).

Based on the correlation results obtained, as can be seen in Table 5, it indicates that the residuals (errors) that arise from the regression equation have the same variance (no heteroscedasticity), where the significance value of each regression coefficient of the two independent variables with an absolute error value still greater than 0.05 (i.e., 0.188 and 0.100).

Table 5. Results of Heteroscedasticity Assumption Testing Correlation

			absolut_error
Spearman's rho	DMO	Correlation Coefficient	-.266
		Sig. (2-tailed)	.188
		N	26
	DPO	Correlation Coefficient	-.330
		Sig. (2-tailed)	.100
		N	26

Source: Processed by Author (2023)

Correlation Analysis. The correlation analysis aims to determine the strength of the relationship between the two independent variables (the influence of DMO and DPO) with Palm Oil Exports. Based on the data processing results, the correlation coefficient of the two independent variables with Palm Oil Exports (Table 6). Based on the value of the correlation coefficient in Table 6, it can be seen that the DMO variable has a strong/close relationship with Indonesian Palm Oil Exports. Then the DPO variable has a reasonably solid/close enough relationship with Indonesian Palm Oil Exports.

Table 6. Results of Heteroscedasticity Assumption Testing Correlation

		EMG	DMO	DPO
Pearson Correlation	EMG	1.000	.641	.518
	DMO	.641	1.000	.169
	DPO	.518	.169	
Sig. (1-tailed)	EMG	.	.000	.003
	DMO	.000		.205
	DPO	.003	.205	
N	EMG	26		26
	DMO	26		26
	DPO	26		26

Source: Processed by Author (2023)

Regression Model Estimation. Regression analysis is used to examine changes that occur in Palm Oil Exports which can be explained or explained by changes in the two independent variables (DMO and DPO). Based on the results of DMO and DPO data processing on Palm Oil Exports can be seen in Table 7.

Table 7. Regression Results of DMO and DPO on Palm Oil Exports, EMG Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.848	1.520		-.976	.399
	DMO	.730	.175	.570	4.176	.000
	DPO	.472	.153	.422	3.095	.005

a. Dependent Variable: EMG

Source: Processed by Author (2023)

Based on the data processing results described in Table 7, the regression equation for the DMO and DPO variables on Palm Oil Exports can be formed as follows: $EMG = -1,484 + 0,730 \text{ DMO} + 0,472 \text{ DPO}$. The regression coefficients of the two independent variables are positive in the regression equation, indicating that a good DMO and DPO implementation will increase Indonesian Palm Oil Exports. Furthermore, a significance test was conducted to test whether the effect of DMO and DPO on Palm Oil Exports is statistically significant, either jointly (simultaneously) or partially (individually). The test starts with the simultaneous test, and if the results of the simultaneous test are significant, it is continued with the partial test.

Simultaneous Regression Coefficient Test. Based on Table 8, it can be seen that the Fcount value from the data processing results is 16,155, and this value becomes a test statistic that will be compared with the F value from the table. From table F at $\alpha = 0.05$ and degrees of freedom (23), the Ftable value is 3.422. Because Fcount (16.155) is more significant than Ftable (3.422), then at an error rate of 5% ($\alpha = 0.05$), it was decided to reject H_0 and accept H_a . It means that with a 95% confidence level, it can be concluded that DMO and DPO simultaneously (together) have a significant effect on Indonesian Palm Oil Exports.

Table 8. Testing the Regression Coefficient Together ANOVAb

		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.300	2	12.150	16.155	.000 ^a
	Residual	17.298	23	.752		
	Total	41.599	23			

a. Predictors: (Constant), DMO, DPO

b. Dependent Variable: EMG
Source: Processed by Author (2023)

Partial Regression Coefficient Test. In partially testing the regression coefficient, the effect of each independent variable on the dependent variable will be tested. The test statistic used in the partial test is the t test. The table value used as a critical value in the partial test (t test) is 2.069, obtained from the t table at $\alpha = 0.05$ and 23 degrees of freedom for two-party testing.

Based on the data presented in Table 7, the tcount value of the DMO variable is 4.176. Because the value of tcount (4.176) is greater than the table (2.069), then, at an error rate of 5%, it was decided to reject H_0 and accept H_a , meaning that with a 95% confidence level, it can be concluded that DMO has a significant effect on Palm Oil Exports. The results of this test provide empirical evidence that an exemplary DMO implementation will increase Indonesian Palm Oil Exports.

Based on the data presented in Table 7, the tcount value of the DPO variable is 3.095. Because the value of t arithmetic (3.095) is greater than the table (2.069), then at an error rate of 5%, it was decided to reject H_0 and accept H_a , meaning that with a 95% confidence level, it can be concluded that DPO has a significant effect on Palm Oil Exports. The results of this test provide empirical evidence that a good DPO will increase Indonesian Palm Oil Exports.

Table 9. Coefficient of Determination Model Sumarryb

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.764 ^a	.584	.548	.86724

a. Predictors: (Constant), DMO, DPO

b. Dependent Variable: EMG

Source: Processed by Author (2023)

Meanwhile, the R-Square value of 0.584 or 58.4 percent indicates that the DMO and DPO variables can simultaneously explain the changes in Palm Oil Exports of 58.4 percent. In other words, DMO and DPO contributed to or influenced 58.4% of changes in Palm Oil Exports. The remaining influence of other factors that are not observed is 41.6%, which is the influence of other factors outside the DMO and DPO variables.

The magnitude of the influence of each independent variable on Palm Oil Exports can be calculated by multiplying the values of the standardized coefficients contained in Table 7 with the correlation values contained in Table 6, then the large influence of DMO on Palm Oil Exports = $0.570 \times 0.641 = 0.365$ or 36.5 percent. The magnitude of the effect of DPO on Palm Oil Exports = $0.422 \times 0.518 = 0.219$ or 21.9 percent.

Based on the calculation results of each independent variable's large influence/contribution on Palm Oil Exports, DMO has a more significant influence on Indonesian Palm Oil Exports. The national demand for palm oil in 2022 will be 5.7 million kiloliters. Meanwhile, household needs are estimated at 3.9 million kiloliters, consisting of 1.2 million kiloliters of premium packaging, 231,000 kiloliters of simple packaging, and 2.4 million kiloliters of bulk. Meanwhile, industrial needs are 1.8 million kiloliters. Along with implementing the DMO policy, we will also implement the DPO policy, which we set at Rp 9,300 per kilogram for CPO and Rp 10,300 per liter for olein. With the DMO and DPO policies, the Highest Retail Price, HET, for bulk palm oil will be set at IDR 11,500 per liter, simple packaged palm oil at IDR 13,500 per liter, and premium packaged palm oil at IDR 14,000 per liter. The HET policy will come into effect on February 1, 2022. The Minister of Trade also said that during the transition period until February 1, 2022, the one-price palm oil policy of Rp 14.00 per liter will remain in effect.

With the implementation of this policy, the community can continue to get palm oil at affordable prices, and traders and producers will still benefit. With this policy, it is hoped that palm oil prices can become more stable and affordable for the community and can remain profitable for small traders, distributors, and producers.

RESULTS AND DISCUSSION

The Effect of DMO Implementation on Palm Oil Exports. The hypothesis that DMO affects palm oil exports has been proven through testing. A t-test with a 5% error rate ($\alpha = 0.05$) shows that the hypothesis that DMO does not affect palm oil exports (H_0) is rejected. In other words, it can be concluded that there is a significant effect of DMO on palm oil exports. The amount of contribution or partial influence of DMO on palm oil exports is 36.5%, meaning that 36.5% of the increase in palm oil exports can be explained by the implementation of DMO. From the distribution of respondents' assessments of the implementation of DMO, it can be seen that the highest respondents' ratings are in the recognition and disclosure dimensions. Recognition is manifested in the use of the price basis used, while disclosure is manifested in a complete presentation of all information needed by users. At the same time, the respondent's assessment of the highest palm oil exports is in the relevant dimension, relevant means that the information must be related to the decision to be taken. From the results of the respondents' assessment, it can be concluded that the use of a price basis is very in line with the DMO and a complete presentation of all information. The results of this study provide empirical evidence that a good DMO implementation will increase Indonesian palm oil exports.

The Effect of DPO Implementation on Palm Oil Exports. The hypothesis that DPO affects palm oil exports has been proven through testing. Through a t-test with an error rate of 5% ($\alpha = 0.05$), the result is that the hypothesis that DPO does not affect palm oil exports (H_0) is rejected. In other words, it can be concluded that there is a significant effect of DPO on palm oil exports. The amount of contribution or partial influence of DPO on palm oil exports is 21.9%, meaning that the 21.9% increase in palm oil exports can be explained by DPO. From the results of respondents' assessment of the highest DPO implementation on the software dimension and documented procedures, it can be explained that good software has good control, good software shows good data processing, so the possibility of data processing errors is minimal, thus good software will produce good palm oil, as well as well documented procedures will record all transactions and procedures correctly so that they can be utilized properly by decision-makers. The results of this study also provide empirical evidence that a good DPO will increase Indonesian palm oil exports, where DPO has a strong contribution to palm oil exports. The hypothesis that DMO and DPO simultaneously affect palm oil exports has been proven through testing. Through F-test at a 5% error rate ($\alpha = 0.05$), the results show that the hypothesis that DMO and DPO simultaneously do not affect palm oil exports (H_0) is rejected.

In other words, it can be concluded that there is a simultaneous influence of DMO and DPO on palm oil exports. The magnitude of the effect of DMO and DPO simultaneously on palm oil exports is 58.4%, meaning that the 58.4% increase in palm oil exports can be explained by the simultaneous implementation of DMO and DPO implementation. It can be concluded that palm oil exports are considered quite good because the implementation of DMO and the implementation of DPO used are also quite good. The implementation of DMO by the government shows that in terms of recognizing, measuring, presenting and disclosing DMO, most of it has been carried out well in the palm oil export process, so the export of palm oil produced can represent a fairly good financial condition. The implementation of the DPO has shown that the components in the DPO used have mostly shown exports that are, by what is needed, very helpful and very adequate so that they can support exports. The results of the effect of DMO and DPO implementation on palm oil exports in

this study provide empirical evidence that a good DMO and good DPO will increase Indonesian palm oil exports. The magnitude of the effect of DMO and DPO simultaneously on exports of palm oil is 58.4%, while the remaining 42.6% is caused by other factors not examined. These other factors are factors that influence palm oil exports which can also increase palm oil exports.

CONCLUSION

Based on the results of the research that has been described, it can be seen that the implementation of DMO has a positive and significant effect on palm oil exports. The results of this study provide empirical evidence that a good DMO implementation will increase Indonesian palm oil exports. The implementation of DPO has a positive and significant impact on palm oil exports. The results of this study also provide empirical evidence that a good DPO will increase Indonesian palm oil exports. This study also concludes that the application of DMO and the application of DPO have a simultaneous effect on Indonesia's cooking oil exports. The results of this study provide empirical evidence that good DMO and good DPO will increase Indonesian palm oil exports.

Managerial implication. Domestic market obligation (DMO) and domestic price obligation (DPO) policies will be effective by improving distribution management starting from downstream, distribution from producers to consumers. And for private companies, this is highly expected by lifting the ban on the export of cooking oil and its raw materials. Of course, it must also prioritize supply and welfare in the country itself.

REFERENCES

- Between News. (2022). GAPKI predicts CPO prices will remain high until March 2022. Accessed from <https://www.antaranews.com/berita/2651109/gapki-predik-harga-cpo-bertahan-tinggi-to-maret-2022>
- Bungin, M. B. (2007). *Penelitian Kualitatif dan kuantitatif*. Jakarta: Kencana Prenada Media Group
- CPOPC. (2021). Palm Oil Supply and Demand Outlook Report 2022. <https://www.cpopc.org/wp-content/uploads/2021/12/CPOPC-OUTLOOK-2022.pdf>
- GAPKI. (2022, January 28). Palm Oil Performance 2021 and Prospects 2022 [Press Release]. <https://gapki.id/news/20519/kinerja-industri-sawit-2021-prospek-2022>
- Indonesian Palm Oil Magazine. (2022). Highest in History, KPBN CPO Price Reaches IDR 15,000/Kg. <https://sawitindonesia.com/tertinggi-sepanjang-sejarah-harga-cpo-kpbn-reach-rp-15-000-kg/>
- Jannah, S. M. (2022). HET Minyak Goreng & Celah Kebijakan yang Buat Warga Tak Menikmati. Tirto.id. https://tirto.id/het-oil-palm-celah-policy-yang-buat-warga-tak-menikmati-gohr?utm_Sumber=Tirtoid&utm_medium=Terkait
- Khatiwada, D., Palmen, C. & Silveira. S. (2021). Evaluating The Palm Oil Demand in Indonesia: Production Trends, Yields, and Emerging Issues. *Biofuels*, 12(2), 135-147. <https://doi.org/10.1080/17597269.2018.1461520>
- Minister of Trade Regulation No. 6/2022. (2022). <http://jdih.kemendag.go.id/peraturan/stream/2198/2>
- Ministry of Trade. (2022). Analysis of the Development of Staple Food Prices in Domestic and International Markets - December 2021. Accessed from <http://bppp.kemendag.go.id/reference/analisisbhp/view/NzM0>
- Purnomo, R. A. (2016). *Analisis Statis Ekonomi dan Bisnis Dengan SPSS*. Ponorogo: cv. Wade Group
- Sipayung, T. (2012). *Ekonomi Agribisnis Minyak Sawit*. Bogor: IPB Press
- Siyoto, S. & Sodik, A. (2015). *Dasar Metodologi Penelitian*. Kediri: Media Literacy Publishing
- Suryani & Hendryadi. (2015). *Metode Riset Kuantitatif*. Jakarta: PT. Fajar Interpratama Mandiri

- Suyatno, R. (1995). *Upaya Peningkatan Produktivitas Kelapa Sawit*. Yogyakarta: PT. Earth Literature
- Timorria, I. M. (2021, November 6). Produsen CPO Terbesar, Kok Harga Minyak Goreng Bisa Naik? Business Economics. <https://economic.bisnis.com/read/20211106/12/1462790/ri-produsen-cpo-terbesar-kok-harga-minyak-sawit-bisa-naik>